Securing caribou for food was difficult on account of the scarcity of the animals, and the shortness of the twilight period at noon. It was hard to find the animals, and hard to see the rifle sights for good shooting even if we did find a stray caribou. We were on short allowance, however, only for a few days. We got only three caribou but they were good sized ones. We had taken plenty of whale blubber along from Langton Bay and finally got to Great Bear Lake with ten or fifteen pounds of blubber left over—it stood both men and dogs in good stead.

"Our party was the same returning as it had been going north in November, except that Dr. Anderson accompanied us. We were finally forced to abandon 100 pounds of load, however—chiefly trade goods (about half of what we carried). Our dogs had become nothing but skin and bone and were not pulling much, so we could not have gotten the full loads across the divide about 100 miles of travel, with the barren ground of the Great Bear Lake Arctic divide about 60 miles wide. Going N. W. true from the mouth of Haldane River one reaches trees on the Horton about 55 miles from Great Bear Lake, and the barren ground on this route is about eighteen or twenty miles wide. The valley of the Horton shows outcrops of crystalline limestone practically everywhere, and in several places there are cañons of this rock up to 200 feet high.

"We start to-morrow for Coronation Gulf [over 120 miles to the N. E.] to visit the Eskimos there and to buy articles from them for an ethnological collection."

A letter from Dr. Anderson, the zoologist of the party, to the American Museum of Natural History reports that he secured a large quantity of specimens between Cape Parry and Langton Bay during the collection season of 1910.

GEOGRAPHICAL RECORD

THE AMERICAN GEOGRAPHICAL SOCIETY

TRANSCONTINENTAL EXCURSION OF 1912. The American Geographical Society of New York proposes to celebrate the sixtieth anniversary of its foundation and the completion and occupancy of its new building by an international excursion of about six weeks' duration across the United States, followed by a meeting in New York City, in the autumn of 1912. The excursion will be directed by Professor W. M. Davis of Harvard University, who hopes to have the co-operation of a number of American geographers. It will be made in a special train, including sleeping cars, a dining car and an observation car. The date of beginning will be placed as late in August as possible, in order to avoid the heat of the American summer; the date of the end must be little later than the middle of October, in order to enable European members to return home in time for university duties before the end of that month. The precise dates of beginning and ending will be determined by later correspondence and by conference with intending participants who may be present at the International Geographical Congress at Rome in October, 1911.

The number of members will necessarily be limited to fifty or sixty persons (men only), of whom it is expected that thirty or more may be European geo-

graphers. Invitations to appoint delegates whom the Society may receive as members of the excursion have lately been sent to fifteen geographical societies of Europe, in Amsterdam, Berlin, Bern, Brussels, Budapest, Christiania, Copenhagen, Lisbon, London, Madrid, Paris, Rome, St. Petersburg, Stockholm, and Vienna. After information is received as to the European membership, it is intended that invitations to take part in the excursion shall be sent to a number of American geographers.

The route of the excursion as now planned includes the following points: New York, Chicago, St. Paul-Minneapolis, Butte, Seattle (possibly San Francisco), Salt Lake City, Denver, Grand Canyon of the Colorado in northern Arizona, St. Louis, Memphis, Chattanooga, Washington, New York. The features of the landscape will necessarily be the first objects of observation in an excursion across a continent, but attention will be given to various other matters as well, such as the relation of transportation lines to topographical features, problems of water supply and water power, corn and wheat on the prairies, cotton in the lower Mississippi valley, cattle ranching on the plains, various mining industries, Indian reservations in the western states, reclamation, irrigation, dry farming, forestry, etc., etc. This route will be changed should circumstances make it necessary or expedient. The monotony of overland travel by rail for forty or fifty days will be reduced by providing all possible comforts of train equipment, by frequent stops for short excursions on foot or otherwise, by occasional nights in hotels, and by abundant discussions of geographical problems.

The meeting in New York at the close of the Excursion will probably occupy two days. Foreign members of the party will be invited to make brief and informal communications on subjects that have excited their interest during the excursion, and to describe European parallels to American examples. Provision will probably be made for the subsequent publication of the papers thus submitted.

All correspondence regarding the Excursion should be addressed to Prof. W. M. Davis, director, c/o American Geographical Society, Broadway at 156th Street, New York.

NORTH AMERICA

Mineral Resources of the United States. The annual report on the Mineral Resources of the United States for 1909 has only recently been published by the U. S. Geological Survey. The delay is due to the fact that, in order to ensure greater thoroughness, the statistics of mineral production in 1909 were collected under a co-operative agreement with the Bureau of the Census by means of a detailed canvass instead of by correspondence as heretofore. The report is published in two volumes, the first containing the statistics of the metals and the second the statistics of the non-metallic products of the country. A discussion of the production of metals in the United States from domestic and foreign ores, by Waldemar Lindgren, appears for the first time in these reports. A chapter on the Movement of Lake Superior Iron Ore in 1909, by John Birkinbine, accompanied by a map, is also an innovation. In the chapter on coal it is stated that revised estimates place the total original coal supply of the United States at about 3,076,000,000,000 short tons, of which only four-tenths of one per cent. had been exhausted at the close of 1909, leaving 99.6 per cent. as the apparent supply still available. Of the original supply of

anthracite, however, estimated at about 21,000,000,000 short tons, only 80 per cent. are still available. The several chapters composing the report have already been issued separately in pamphlet form and have been listed in the *Bulletin* under "Current Geographical Papers."

MR. RADFORD'S PROGRESS IN NORTHERN CANADA. Mr. Harry V. Radford, whose earlier work on his present expedition for collecting natural history specimens and geographical exploration in northern Canada has been briefly referred to in the *Bulletin* (Vol. 43, p. 134, Feb. 1911), writes to the Society from Fort Resolution, Great Slave Lake, Canada, July 9, 1911, that he and his assistant, T. George Street of Ottawa, left Fort Smith on June 27, and reached Fort Resolution by canoe on June 30. The two men intended to leave in their canoe on July 1 for Chesterfield Inlet, which they hoped to reach toward the end of September on their way to the North Coast through the Barren Grounds. A white man who had agreed to accompany them to the Arctic, deserted at Fort Resolution. He was the fourth white man to desert, and Radford and Street expected to make the trip alone. Mr. Radford adds: "It is rather a small crew for such a voyage, with many portages, rapids, etc., on the way, but I believe we can get through safely. There are no natives between Artillery Lake (Yellow Knife Indians) and Baker Lake (Eskimos), and most of the way is through the treeless Barren Grounds."

Two Indians were to accompany them in another canoe, as far as Artillery Lake, to lighten the load to that point, and help over the six or eight portages.

"We can manage to stow into our canoe only 437 pounds of food supplies, in addition to the bedding, arms, ammunition, scientific equipment, etc., that must be carried. This is hardly adequate for the two and a half months' journey to Chesterfield Inlet. I am supplying the Indians with 225 pounds additional food supplies, which are to see them to Artillery Lake and return. Street and I are depending upon securing game and fish along the way—as we carry nets and a plentiful supply of ammunition. Probably we shall have no food supplies remaining when we reach Chesterfield Inlet; but if the relief supplies requested are sent there this summer, by vessel [they were forwarded by Mr. Anthony Fiala, of the Arctic Club, through the co-operation of the Arctic Club and the Hudson Bay Company], Street and I propose to winter with the Eskimos at Baker Lake in snow houses, proceeding to the Arctic coast in the early spring. Should the supplies not arrive, it will probably be necessary for us to retreat this fall to Fort Churchill (350 miles south of Chesterfield Inlet) before the freeze-up.

"The zoological and botanical collections have been continued. All of these specimens have been forwarded to the United States Biological Survey, Washington, for determination. To date the specimens number: Mammals 67, birds 22, insects 47, plants 150, geological 10, and ethnological 40. About 400 stereoscopic photographs have been taken.

"The maps, showing results of my explorations east and west of the Slave River during the past two years, were completed during the last weeks of my residence at Fort Smith, and sent to the Interior Department of Canada. The discoveries include a large river—the Thalson, 600 miles in length; many lakes, including Lady Grey Lake, nearly 100 miles in length; and other natural features."

SEARCHING FOR MINERAL FERTILIZERS. The *Press Bulletin* of the U. S. Geological Survey (Aug. 31, 1911) says that the field force of the Survey is carry-

ing on searches for deposits of minerals which shall furnish the three necessary elements of plant food, phosphate, nitrate and potash. The Survey has already discovered and surveyed enormous deposits of phosphate rock, and 2,398,590 acres of public land containing phosphate, withdrawn at the recommendation of the Geological Survey, are now awaiting legislation by Congress to enable their development. In order, however, to insure an "all-American" fertilizer, regardless of importations from other countries, it remains to discover deposits of nitrate of soda and potash salts. As both of these minerals are readily soluble and are not to be found as "outcrops" like ordinary rocks, the mission of the Survey is not an easy one. Nevertheless, it is believed that the geologic conditions prevailing throughout a large portion of the arid West favored the accumulation, during earlier periods of the earth's history, of both of these salts and that if these still exist in concentrated deposits it is only a question of search to discover them.

HALF A BILLION TONS OF COAL. For the first time in the history of the United States, the coal mines of the country in 1910 were credited with an output exceeding half a billion short tons, the combined production of anthracite, bituminous coal, and lignite having amounted to 501,576,895 short tons, with a spot value of $629,529,745. This great output according to Edward W. Parker, Coal Statistician of the United States Geological Survey, was attained in spite of the fact that most of the mines in Illinois, Missouri, Kansas, Arkansas, and Oklahoma were closed for nearly six months by one of the most bitterly contested strikes in the history of the industry. The heaviest tonnage mined in any year previous to 1910 was in 1907, when a total of 480,363,424 short tons was produced.

THE ATLANTIC AND PACIFIC TRANSPORT CO. Press despatches report the organization of a steamship company which will operate lines to connect the Atlantic with the Pacific seaboard after the opening of the Panama Canal. The company was incorporated under the name of the Atlantic and Pacific Transport Co. It will bid on contracts now being advertised by the Postmaster General, which call for weekly ocean mail service between New York and Colon in six days, with stops at Charleston and Savannah; between New Orleans and Colon in four days and between San Francisco and Panama in ten days, with alternate stops at San Diego and San Pedro; and for a fortnightly service between Seattle and Panama in sixteen days, with a stop at Astoria. Although connection between the above ports is alone required the new company intends to make use of the Panama Canal and will inaugurate a continuous service between Atlantic and Pacific ports. In addition to the above lines it expects to extend its operations and have steamers sailing from Portland, Me., Boston, Philadelphia, Baltimore, Norfolk, Jacksonville, Key West, Mobile and Galveston through the canal to the Pacific Coast ports and *vice versa*. The company also expects to handle a great traffic at the Panama and Colon terminals of the canal, this trade to consist of trans-shipments to and from Central American markets and to and from the canal in connection with foreign ships from all parts of the world.

The charter of the company has been drawn up so as to conform with the requirement of the Post Office Department that the company receiving the mail contract must in no way be connected with any organization "engaged in any competitive transportation business by rail." W. L. G. J.

CARTOGRAPHICAL

COLORING OF RELIEF MAPS. The *Geographical Journal* (Vol. 38, p. 79, 1911) says that among the Austrian workers in the direction of an improved scheme for the coloring of relief-maps, based on the optic properties of colors, Herr G. Freytag, of the Cartographical Institute of Freytag and Berndt, at Vienna, deserves credit for the results attained. Like Dr. Peucker he has been working at the question for some years, and has arrived independently at a solution, which is briefly described in a pamphlet issued by his firm this year. It is accompanied by a specimen relief-map colored according to the scheme adopted, the effect of which is perhaps as satisfactory as any of the attempts hitherto made in the same direction. The stereoscopic effect of the colors selected is well brought out by a pair of diagrams, in the first of which a square is colored with the reds in the center, these passing outwards through yellow to green and blue; in the other the order is reversed. The former gives the appearance of being raised, the latter of being depressed, in the center. The gradations are brought about by the differences in the tints, the strength remaining the same, so that violent contrasts are avoided.

AVIATION CARTOGRAPHY. The Geographical Service of the Army of France has caused a map to be made of a region, 50 miles by 80, about Chalons, "the center of aviation," which is published in the *Annales de Géographie* for August. It is on the scale of 1:200,000, about 17 by 26 inches in size, and in six colors. Every kind of road, railway, tramway, and electric wires is indicated, as well as the contours of the land, with heights given, the forests, streams, marshes, ponds, cultivated tracts, inhabited places, stations, garages, churches, graveyards, towers, windmills, forts, and even isolated trees and places dangerous for alighting. The map is beautifully executed. It is regarded as so successful that the minister of war has ordered the preparation of similar charts of the regions about Paris, Amiens, and Mézières, for use in the army manœuvres.

GEOGRAPHICAL SOCIETIES

MAJOR LEONARD DARWIN'S SUGGESTIONS FOR THE FUTURE WORK OF THE ROYAL GEOGRAPHICAL SOCIETY. In his address to the Society on May 22 (*Geogr. Journ.*, July, 1911), the retiring President made suggestions that are worthy of more than local consideration. A few extracts from the address are given here. After alluding at some length to the fact that the great era of pioneer exploration is practically a finished chapter, Major Darwin said, among other things:

"We ought no doubt, in view of the changing conditions, to direct our efforts with more persistence than heretofore in the direction of encouraging travelers to make systematic and detailed examinations of comparatively small areas, and not merely to cover long distances with the result of doing little more than confirm the impressions of previous explorers. Their surveys should be as good as is possible in the circumstances, and the information they collect should be extensive, varied, systematic and recorded with reference to the needs of the students of science and history, as well as of the man of commerce. In short, the traveler of the future ought to be a trained topographer, or to have thoroughly prepared himself in advance for some definite class of investigation, if he wishes to win our praises. . . .

"In many directions what is now most needed is not the gathering of more

crops, but rather the tedious task of systematizing, collating and indexing what is already in hand. . . . In short our aim should be, it is suggested, with the aid of maps, to correlate and popularize all knowledge which can thus conveniently be harmonized, laying especial stress on all matters of direct importance to the human race. There are obviously certain branches of learning which are clearly within our dominion, such as geodesy, surveying, topography and cartography, and to these especial attention should be paid. But as to the territories belonging to the other sciences, it would be well if we make it clear that we have no wish to annex them, our only object being as it were to trade with them in order to utilize the goods they produce and to make them more widely known and appreciated. . . .

"As regards internal administration, the aim must be to make the Society's house a place where accurate information can readily be obtained concerning all countries, including our own, the information thus supplied being all that could be described as geographical within the most elastic meaning of the word. The acquisition of suitable maps and books should, indeed, in future only be limited by financial necessity, whilst the collection of geographical photographs should be well maintained. No pains should be spared to make our systems of indexes as perfect as possible, a subject to which, as a fact, considerable attention has recently been paid; and with such aids the staff should be in a position to give every assistance to all students wishing to utilize the vast stores of information which the premises should contain. In short, we shall want more maps, more books, more photographs, and a more convenient house to hold both them and the steadily accumulating objects of interest which we own; and if the Society continues to grow in usefulness on the lines suggested, we must look forward to the possibility of a material increase being needed in the number of the staff. Moreover, our means of keeping in touch with foreign countries should be considered from time to time, to see if they are not capable of improvement. For example, as a single possible suggestion, might it not be worth considering whether British consuls, whilst actually serving abroad, should not be allowed to join our ranks with some special advantages as regards fees?

"As to the work of exploration and investigation for which we are not directly responsible, this should, as heretofore, continue to receive our warmest encouragement and our help when possible. And as to the award of medals, which has undoubtedly had such a stimulating effect in the past, it is perhaps worth noting that the task of selecting the recipients is likely to increase in difficulty as the opportunities for startling achievements become less frequent. The geographical work of our descendants is likely, as far as we can now see, to be more often noteworthy for thoroughness than for brilliancy; and thoroughness, it may be hoped, will never be a rare quality, amongst our fellow-countrymen at all events. No alarm, therefore, should be felt if some considerable changes in the method of making our awards should be made in the course of the next few years. It will only be one of the many symptoms of the wide changes taking place in the whole field of science; changes which necessitate our efforts being constantly directed towards ensuring that the work done in the geographical world be increasingly systematic, scientific and thorough, as well as more and more calculated to be advantageous to mankind."